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EXAMINER

BOYD, JENNIFER A

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1771

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/778,454
Filing Date: February 07, 2001
Appellant(s): LU, FUMIN

MAILED
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GROUP 1700

Barry L. Haley
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 13, 2005 appealing from the Office action mailed December 7, 2004.

Art Unit: 1771

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,476,911	MORINI et al.	12-1995
6,548,431	BANSAL et al.	05-2003
5688468	LU	11-1997
6268302	OFOU et al.	07-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102/103

1. Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Morini et al. (US 5,476,911).

Morini et al. is directed to crystalline propylene polymers having high melt flow rate values (Title). Morini teaches a crystalline propylene polymer having a melt flow rate ranging from 600 to 1000 g/min (Abstract). Morini teaches that the polymer may be used to create a nonwoven web such as a spun-bonded web (column 12, lines 1 – 15). Morini teaches that the crystalline propylene polymers have a narrow molecular weight distribution allowing the fibers to be produced with fast spinning processes (column 3, lines 25 – 30).

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983). It should be noted that it is the position of the Examiner that the filament spinning rate does not

Art Unit: 1771

have a material affect on the product, therefore, the limitation of generating a filament at a speed above 4,000 meters per minute is not given any patentable weight at this time.

2. Claim 7 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bailey et al. (WO 96/29460).

Bailey is directed to improved carpet construction and carpet backings for the same (Title). Bailey teaches an adhesive binder (page 10, lines 10 – 15). Bailey teaches that the binder can comprise preferably low density polyethylene because of its melting characteristics and the performance properties such as tuft bind and fuzz resistance (page 10, lines 30 – 35). Bailey teaches that the adhesive binder preferably has a high melt index or melt flow rate; the melt index or flow rate is preferably greater than 60 grams per 10 minutes (page 11, lines 5 – 10). It should be noted that Bailey does not provide an upper limit to the melt flow index, therefore, the melt flow index of Bailey and the Applicant overlap. Bailey teaches that the binder is preferably in the form of a nonwoven fabric such as spunbonded fabric (pages 11 and 12).

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

Art Unit: 1771

3. Claim 3 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bansal et al. (US 6,548,431).

Bansal is directed to a process for making a nonwoven sheet of substantially continuous melt spun fibers by extruding melt spinnable polymer containing at least 30% by weight of low intrinsic viscosity polyethylene terephthalate, drawing the extruded fiber filaments at a rate of 6000 m/min, laying the fiber filaments down on a collection surface and bonding the fiber filaments together to form a nonwoven sheet. Bansal teaches that the intrinsic viscosity is less than 0.62 dl/g (Abstract). According to *Complete Textile Glossary* by Celanese Acetate, a spun-bonded product is a nonwoven fabric formed by filaments that have been extruded, drawn and then laid on a continuous belt. It should be noted that Bansal discusses each of those elements, therefore, it is the position of the Examiner that the nonwoven web of Bansal is a spunbonded web. Bansal teaches that the nonwoven sheet of the invention can comprise single component fibers (column 12, lines 60 – 65).

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

Art Unit: 1771

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (US 5,688,468) in view of Ofosu et al. (US 6,268,302).

Lu teaches a process for producing a non-woven polymeric fabric web such as a spunbonded web, having filaments of 0.1 to 5 denier with equivalent production rate (Abstract). The filaments are drawn from the drawing unit and merged on the surface of a web forming table (column 8, lines 57 – 67 and column 9, lines 1 – 12). It is known in the art that nylon including nylon 6 is conventionally melt spun (column 1, lines 39 – 42).

Lu teaches the claimed invention but fails to teach that the nylon 6 has a low relative viscosity, specifically below 2.2.

Ofosu et al. teaches a multi-layer spunbonded nonwoven fabric with superior strength and softness (Abstract). Ofosu notes that it is believed that small fibers made from lower viscosity polymers enable more polymer to flow at the bond points during bonding, thus ensuring a strong bond, yet the web retains the advantage of softness which smaller fibers provide (column 5, lines 50 – 60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a low viscosity polymer as suggested by Ofosu in the nylon 6 spunbonded fabric of Lu motivated by the desire to ensure a strongly bonded soft nonwoven material.

Lu in view of Ofosu teaches the claimed invention except fails to disclose that the relative viscosity is below 2.2. It should be noted that relative viscosity is a result effective variable. For example, the relative viscosity directly affects the bond strength of the resulting nonwoven fabric. It would have been obvious to one having ordinary skill in the art at the time

Art Unit: 1771

the invention was made to create the nonwoven fabric with nylon 6 having a relative viscosity below 2.2 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the relative viscosity of the polymer in order to create a nonwoven fabric with optimal bond strength.

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983). It should be noted that it is the position of the Examiner that the filament spinning rate does not have a material affect on the product, therefore, the limitation of generating a filament at a speed above 4,000 meters per minute is not given any patentable weight at this time.

5. ~~Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey et al. (WO 96/29460).~~

Bailey discloses the claimed invention except that the spunbonded fabric can be a multiple layer fabric consisting of layers of the filaments of the same resins. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a

Art Unit: 1771

fabric using multiple layers of the adhesive spun-bonded fabric since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. In the present invention, one would have been motivated to use multiple layers of the adhesive spun-bonded fabric in order to increase the strength of the adhesive spun-bonded material.

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

(10) Response to Argument

In regards to the first ground of rejection, Applicant argues that the Examiner erred in rejecting claim 1. Applicant argues that there is no teaching or suggestion in Morini, et al. to produce the spunbonded fabric claimed by Appellant in claim 1. Applicant argues that the reference in Morini, et al. to spunbonded processes conveys no information or teaching of Appellant's claimed product. It should be noted that Morini teaches that "the crystalline homopolymers and copolymers of this invention can be readily spun into fibers or filaments and the fibers or filaments thus produced can be used to make fibrous webs, particularly nonwoven fibrous webs". Additionally, Morini notes that the "*webs and fabric produced from such fibers*

Art Unit: 1771

by the spun-bonded processes have superior tensile strength and softness (as claimed by Applicant) over webs and fabrics produced by thermal degradation processes or by known polymerization processes using known catalysts.” See Morini, columns 11 and 12. It should be noted that Morini positively states that the polymer of the invention can be made into a spun-bonded fabric and that the resulting product has superior tensile strength and softness. Morini implies that the polymer of the invention can be used in fast spinning processes. See column 3, lines 24 – 30. Once again, it should be noted that, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983). Applicant has argued that the process of Morini is different than Applicant’s process; Applicant claims generating a filament at a speed above 4,000 meters per minute while Morini discusses a generic fast spinning process. Based on the fact that Morini teaches all claimed product limitations and those limitations implied by the claimed process, the burden is upon the Applicant to show unobvious differences between the prior art product and the claimed product. The Applicant has not met the burden. The rejection is maintained.

In regards to the second ground of rejection, Applicant argues that Bansal does not teach the invention of claim 3. Applicant argues that Bansal teaches using two separate polymers to make a single filament while the Applicant claims the use of only polyethylene terephthalate.

Art Unit: 1771

Bansal teaches that the fibers constituting the nonwoven fabric are comprised in substantial part of synthetic melt spinnable polyethylene terephthalate with a low intrinsic viscosity (column 11, lines 1 – 10). Bansal specifically teaches that the fibers can be single component fibers (column 12, lines 60 – 65). Although Bansal does indicate that fibers can be multi-component as well, it would be improper to ignore the teaching of single component fibers. Additionally, it should be noted that Bansal teaches creating spunbonded fabrics having very fine fibers where the diameter ranges from 5 – 11 microns (see column 12, lines 55 – 65) and Bansal is concerned about fabric strength and softness (column 14, lines 20 – 35) as claimed by Applicant. The Examiner submits that the final product of Bansal is the same as Applicant's. The rejection is maintained.

In regards to the third ground of rejection, Applicant argues that there is no teaching in Lu '468 to employ an ultra low viscosity polymeric resin. Applicant argues that the secondary reference, Ofosu '302, specifically limits the melt flow rate between 50 – 150 grams at a very defined temperature. It should be noted that melt flow rate is not claimed in claim 5, instead Applicant claims a relative viscosity of below 2.2. The secondary reference, Ofosu '302, specifically acknowledges an advantage of making smaller fibers made from a lower viscosity polymer. Ofosu '302 states that the polymers allow more polymer to flow at the bond points during bonding, thus ensuring a strong bond, yet the web retains the advantage of softness which smaller fibers also give. See column 5, lines 50 – 60. Therefore, it should have been obvious to one of ordinary skill in the art practicing the invention of Lu to create a nylon 6 spunbonded fabric having a low relative viscosity as suggested by Ofosu to create a strongly bonded soft nonwoven material. Furthermore, Ofosu discusses the use of low viscosity polymers, however, does not specifically teach the viscosity in terms of relative viscosity. Ofosu provides guidance

Art Unit: 1771

to lower the viscosity to create a strongly bonded soft spun-bonded fabric. Therefore, it would have been obvious to optimize the relative viscosity. The citation of Boesch case law is deemed appropriate. It should be noted that the final product of Lu in view of Ofosu teaches a soft, strongly bonded spunbonded fabric having fine fibers having a low relative viscosity; the Examiner submits that the final product is the same as Applicant's. The rejection is maintained.

In regards to the ^{fourth} ~~forth~~ rejection, Applicant argues that Bailey does not teach the invention of claim 7. Bailey refers to US Patent 5,173,356 in regards to a preferred form of fabric used for providing an adhesive binder for carpeting. US Patent 5,173,356 teaches using a non-woven fabric having a melt flow rate not exceeding 80 grams per minute, which is not close to Applicant's claimed melt flow rate. Although Bailey discusses a preferred fabric on page 11 of Bailey, Bailey also teaches that the melt flow rate of the adhesive binder fabric should have a melt index above 60 grams per minute at 190 degrees Celsius with no upper limit. Although Applicant has claimed the melt flow rate at 230 degrees Celsius rather than 190 degrees Celsius, it is submitted that at Applicant's higher temperature, the melt flow rate discussed in Bailey would increase, thus still anticipating Applicant's melt flow rate range. It should be noted that the melt flow rate in US Patent 5,173,356 is considered to be an example or preferred embodiment. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). Therefore, although Bailey discusses an embodiment where the melt flow rate does not exceed 80 grams per minute, Bailey also discloses a preferred embodiment where the melt flow rate is above 60 grams per minutes at 190 degrees Celsius (with no upper limit). The Examiner submits that Bailey anticipates Applicant's range. The rejection is maintained.

Art Unit: 1771

In regards to the fifth ground of rejection, Applicant relies on and reiterates the arguments set forth for the rejection of claim 7. See the Examiner's arguments above. The rejection is maintained.

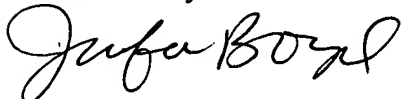
(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jennifer Boyd



Conferees:

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